

AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior listing of claims in this application.

Claims 1-12 (Canceled).

13. (Currently amended) A semiconductor device comprising:

a layer that is transparent to light having a first thickness, wherein said transparent layer includes a material selected from the group consisting of BPSG, PSG, and TEOS; and

a first ~~continuous~~ anti-reflective coating formed beneath the transparent layer having a second thickness, wherein said first thickness is greater than the second thickness.

14. (Original) The semiconductor device of claim 13 wherein the first anti-reflective coating has a complex refractive index with an imaginary part whose value is at least one.

15. (Canceled).

16. (Original) The semiconductor device of claim 13 wherein the transparent layer includes an oxide.

17. (Original) The semiconductor device of claim 13 wherein the first anti-reflective coating includes a material comprising an organic polymer.

18. (Original) The semiconductor device of claim 13 wherein the first anti-reflective coating includes a material comprising silicon and nitrogen.

19. (Original) The semiconductor device of claim 13 wherein the first anti-reflective coating includes a material comprising silicon and oxygen.

20. (Original) The semiconductor device of claim 13 further including:

a second anti-reflective coating extending over the transparent layer.

21. (Currently amended) A semiconductor device comprising:

a layer that is transparent to light having a wavelength of approximately 365 nm, wherein said transparent layer includes a material selected from the group consisting of BPSG, PSG and TEOS; and

a first anti-reflective coating ~~extending substantially entirely~~ formed beneath the transparent layer.

22. (Original) The semiconductor device of claim 21 wherein the first anti-reflective coating has a complex refractive index with an imaginary part whose value is at least one.

23. (Canceled).

24. (Original) The semiconductor device of claim 21 wherein the transparent layer includes an oxide.

25. (Original) The semiconductor device of claim 21 wherein the first anti-reflective coating includes a material comprising silicon and nitrogen.

26. (Original) The semiconductor device of claim 21 wherein the first anti-reflective coating includes a material comprising silicon and oxygen.

27. (Original) The semiconductor device of claim 21 further including:

a second anti-reflective coating extending over the transparent layer.

28. (Currently amended) A semiconductor device comprising:

a layer that is transparent to light having a wavelength of approximately 193 nm, wherein said transparent layer includes a material selected from the group consisting of BPSG, PSG and TEOS; and

a first anti-reflective coating ~~extending substantially entirely~~ formed beneath the transparent layer.

29. (Original) The semiconductor device of claim 28 wherein the first anti-reflective coating has a complex refractive index with an imaginary part whose value is at least one.

30. (Canceled).

31. (Original) The semiconductor device of claim 28 wherein the transparent layer includes an oxide.

32. (Original) The semiconductor device of claim 28 wherein the first anti-reflective coating includes a material comprising silicon and nitrogen.

33. (Original) The semiconductor device of claim 28 wherein the first anti-reflective coating includes a material comprising silicon and oxygen.

34. (Original) The semiconductor device of claim 28 further including:

a second anti-reflective coating extending over the transparent layer.

35. (Previously presented) The semiconductor device of claim 20 wherein the second anti-reflective coating includes a material comprising silicon and nitrogen.

36. (Previously presented) The semiconductor device of claim 20 wherein the second anti-reflective coating includes a material comprising silicon and oxygen.

37. (Previously presented) The semiconductor device of claim 20 wherein the second anti-reflective coating includes a material comprising an organic polymer.

38. (Previously presented) The semiconductor device of claim 27 wherein the second anti-reflective coating includes a material comprising silicon and nitrogen.

39. (Previously presented) The semiconductor device of claim 27 wherein the second anti-reflective coating includes a material comprising silicon and oxygen.

40. (Previously presented) The semiconductor device of claim 27 wherein the second anti-reflective coating includes a material comprising an organic polymer.

41. (Previously presented) The semiconductor device of claim 34 wherein the second anti-reflective coating includes a material comprising silicon and nitrogen.

42. (Previously presented) The semiconductor device of claim 34 wherein the second anti-reflective coating includes a material comprising silicon and oxygen.

43. (Previously presented) The semiconductor device of claim 34 wherein the second anti-reflective coating includes a material comprising an organic polymer.

44. (Currently amended) A semiconductor device comprising:

a silicon oxide layer formed over a surface of a substrate;

an anti-reflective coating layer having a first thickness formed over said silicon oxide layer;

a layer which is transparent to the wavelength of light formed over the anti-reflective coating layer, said transparent layer having a second thickness greater than said first thickness, and wherein said transparent layer includes a material selected from the group consisting of BPSG, PSG and TEOS.

45. (Previously Presented) The semiconductor device of claim 13, wherein said transparent layer is transparent to light having a wavelength of approximately 248 nm.

46. (New) A semiconductor device comprising:

a gate electrode formed over a semiconductor substrate;

a first impurity region formed on one side of said gate electrode;

a second impurity region formed on the opposite side of said gate electrode;

an interconnection layer formed over said first impurity region;

a first dielectric anti-reflective coating layer formed over substantially the entire upper surface of said semiconductor substrate; and

an interlayer insulation film formed over said first dielectric anti-reflective coating layer, wherein a contact hole is provided through said first anti-reflective coating layer and said interlayer insulation film exposing said second impurity region.

47. (New) The semiconductor device of claim 45, further comprising a second dielectric anti-reflective coating layer formed substantially on the entire upper surface of said interlayer insulation film.

48. (New) The semiconductor device of claim 47, wherein a contact hole is provided through said first and second anti-reflective coating layers and said interlayer insulation film exposing said second impurity region.

49. (New) The semiconductor device of claim 46, wherein said interlayer insulation film comprises a material that is transparent to light selected from the group consisting of BPSG, PSG, and TEOS.

50. (New) The semiconductor device of claim 46, wherein said first dielectric anti-reflective coating layer is approximately from 200 Å to about 500 Å thick.

51. (New) The semiconductor device of claim 46, wherein said first dielectric anti-reflective coating layer has a complex refractive index with an imaginary part k that corresponds to the first dielectric anti-reflective coating layer's light absorption coefficient, wherein said k is in the range from approximately 1.0 to approximately 1.5.

52. (New) A method of forming semiconductor device comprising:

forming a gate electrode over a semiconductor substrate;

forming a first impurity region on one side of said gate electrode;

forming a second impurity region on the opposite side of said gate electrode;

forming an interconnection layer over said first impurity region;

forming a first anti-reflective coating layer over substantially the entire upper surface of said semiconductor substrate;

forming layer which is transparent to light over said first anti-reflective coating layer;

forming a photosensitive film layer over said first anti-reflective coating layer;

forming a mask layer over said photosensitive film layer that is used to define a contact hole formed in said semiconductor device; and

exposing said photosensitive film layer and said mask layer to a wavelength of light, wherein said step of exposing forms a contact hole through said layers to expose said second impurity region.

53. (New) The method of claim 52, further comprising forming a second anti-reflective coating layer substantially continuous on the entire upper surface of said transparent layer and below said photosensitive film layer.

54. (New) The method of claim 52, wherein said transparent layer comprises a material selected from the group consisting of BPSG, PSG, and TEOS.

55. (New) The method of claim 52, further comprising forming said first anti-reflective coating layer to have a complex refractive index with an imaginary part k , that corresponds to the first dielectric anti-reflective coating layer's light absorption coefficient, wherein said k is formed to be in the range from approximately 1.0 to approximately 1.5.